

Session #1

Remove It and They Will Disappear

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Abstract

Remove It And They Will Disappear: New Evidence Why Building New Roads Isn't Always the Answer

While [induced travel](#) has countered the notion that cities can build themselves out of congestion, reduced travel has emerged to further challenge the way local officials think about road building.

Flying in the face of conventional wisdom, new evidence shows that closing roads can eliminate traffic. A British study, released in March, 1998, is creating a buzz in transportation circles. The study found that closing roads actually cuts driving trips. The research team, led by Phil Goodwin of University College London, one of the Blair government's key transport advisors, analyzed 60 cases worldwide where roads were closed, or their ability to carry traffic was reduced. On average, researchers found that 25 percent of the traffic vanished when a road was closed. And in some cases, the researchers found that an astonishing 60 percent of the driving trips disappeared. The question is, will it convince stalwart road supporters to curb the road building fervor and plan cities that serve its citizens?

Evidence of reduced travel has surfaced in the U.S., but it has been met with skepticism, or ignored entirely. The main lessons from these studies, however, lend support to any city that desires a healthy transportation system. Accommodating a major change in traffic patterns like a road closure, the study shows, appears to be the system's flexibility. Commuters in the British study had a variety of travel options to choose from, including public transit, walking, or working from home. This adaptability allowed for a smooth transition, demonstrating that a balanced approach to transportation planning not only better serves its citizens, but allows for improved [traffic management](#).

Many local officials have found that decreasing road capacity and expanding options for public transit, walking, and biking are rejuvenating their cities. New evidence from the UK supports these decisions, creating fresh opportunities for traffic management. By demonstrating that road closures can eliminate traffic and boost the economy, reduced travel further debunks the notion that building more roads will solve traffic problems. And as cities around the world wrestle with rising traffic congestion, evidence of reduced travel helps show that a balanced, equitable system is the most effective solution.

Remove It And They Will Disappear: New Evidence Why Building New Roads isn't Always the Answer

While induced travel has countered the notion that cities can build themselves out of congestion, reduced travel has emerged to further challenge the way local officials think about road building. Whereas induced travel is characterized as “build it and they will come,” reduced travel takes this one step further with “remove it and they will disappear.”

Flying in the face of conventional wisdom, new evidence shows that closing roads can eliminate traffic. A British study released in March, 1998, entitled the *Traffic Impact of Highway Capacity Reductions*, is creating a buzz in transportation circles. The study found that closing roads actually cuts driving trips. The research team, led by Phil Goodwin of University College London, one of the Blair government's key transport advisors, analyzed 60 cases worldwide where roads were closed, or their ability to carry traffic was reduced. On average, researchers found that 25 percent of the traffic vanished when a road was closed. And in some cases, the researchers found that an astonishing 60 percent of the driving trips disappeared.

But where does the traffic go? While transportation planning models would assume that traffic will shift onto other roads and cause congestion elsewhere, experts now posit that in many cases, it actually disappears.

Background

Increasingly, suggestions have arisen that predictions of traffic chaos following road closures are overly simplistic and, as the authors discovered, may not be well founded. One of the foundations for this conclusion is the 1994 British Standing Advisory Committee on Trunk Road Assessment (SACTRA) study which concluded that “induced traffic does occur, probably quite extensively.”

The phenomenon of induced travel has been studied for years, but the strength of these findings have led today's researchers to be less concerned with whether induced traffic exists, and more focused on determining the magnitude of its impacts. Typically, when drivers perceive an increase in either travel time or travel cost, they usually cope by altering their route, travelling at a different time of day, switching to a different mode, or traveling less. When road capacity is expanded, studies on induced travel found, the opposite happens.

The Federal Highway Administration (FHWA) found evidence of induced travel in a study of Milwaukee, where researchers concluded that induced traffic accounted for 11 to 12 percent of the area's traffic growth between 1963 and 1991 (Kevin Heanue, TRB 1997). Mark Hansen's pivotal study at UC Berkeley examined 30 urban counties in California from 1973 to 1990 and found that at the metropolitan level, every one percent increase in new lane miles generates a 0.9 percent increase in traffic over four years.

The study on reduced travel set out to determine whether the findings of induced traffic would lead researchers to conclude that, similarly, a reduction in capacity would result in an overall reduction in traffic volume. If this were true, the researchers posited, the displaced traffic would

cause less severe congestion than expected. The study examined traffic reduction under three different conditions: as a side effect of maintenance or repairs, in cases of natural disaster, or as a direct result of policy.

Findings

Due to structural problems, Tower Bridge in London was closed in 1994 and became a prime example of “reduced travel.” According to London’s chief engineer, “[t]hree years later the traffic had still not returned to its original level.” Researchers also found that when part of London’s notorious ring road, the “ring of steel,” was closed in 1993, traffic fell 40 percent, and air pollution dropped 15 percent. London’s Hammersmith Bridge provided further evidence when it was determined incapable of carrying its load of 30,000 vehicles a day. The bridge was closed to all traffic except buses and cyclists since last February. London’s Transport department surveyed people who used the bridge a few days before it closed, and then contacted the same people in the weeks following the closure. Of the commuters who used the bridge to get to work, some switched to public transit and others chose to walk or bike. Overall, 21 percent no longer drove to work. And remarkably, congestion in the surrounding areas has not markedly increased.

The researchers found similar patterns worldwide. In Japan, in the wake of the 1995 Kobe earthquake, the entire Hanshin Expressway network was impacted, resulting in a dramatic decline in traffic in the Osaka-Kobe area. Once the network was restored patterns of mode use re-established themselves, but with a 27 percent decline in car travel. The results of these studies led researchers to assert, “we conclude that measures which reduce or reallocate road capacity, when well-designed and favored by strong reasons of policy, need not automatically be rejected for fear that they must inevitably cause unacceptable congestion.”

Cities that have consciously changed their road allocation policies dispel the myth of traffic chaos. In Nürnberg, Germany (population 480,000) city policy called for the pedestrianization of the city center beginning in the 1970s, and closed the last through street in 1988. As local officials reported, “Nearly 80 percent of the car traffic simply disappeared and could not be accounted for in parallel streets.” Overall, the study which was conducted from 1988 to 1992, found a traffic reduction of seven percent. In the city of Hamm, Germany, population 183,000, traffic calming measures reduced a major road from four to two lanes. Local officials reported a 16 percent reduction on most of the road, with the added benefit of a 54 percent reduction in traffic accidents.

Here in the U.S., evidence of reduced travel has surfaced, but it has been met with skepticism, or ignored entirely. In fact, the U.S. equivalent of SACTRA, a committee of the Transportation Research Board, made the decision to exclude empirical evidence of road closures and traffic calming in their influential 1995 report, *Expanding Metropolitan Highways*. If they had considered such evidence they would have found stories such as the West Side Highway in New York City. In 1973, one section of the highway collapsed, resulting in the closure of most of the route. NYDOT did a study in 1976 of the remaining portion of highway, in which traffic counts taken three years before the closure and two years after revealed that, overall, 53 percent of the trips disappeared, and of those trips, 93 percent did not reappear elsewhere—only seven percent of

the lost traffic was diverted onto parallel roads. The West Side Highway was included in the British report, which found an overall traffic reduction of eight percent.

Implications for Small and Medium-Sized Cities

The findings of the British study are significant for any city, suburb or rural area. Having travel options not only affords citizens choices in how they get to work or go to the store, but ensures that the transportation system can absorb sudden changes in traffic flow and mode choice. However, as small and medium-sized cities continue to struggle with growth and increasing traffic, preserving quality of life becomes an important part of decision making. The study's findings, therefore, may be most useful for smaller areas that are faced with difficult economic decisions about whether or not to build roads, particularly bypass projects.

Bypasses are often touted as a catalyst for regional economies, offering advantages such as construction jobs, facility planning and operations, as well as indirect benefits from less delays and inter-industry effects. Actual research shows that mostly these projects mostly shift economic activity from one place to another. A study by Professor Marlon Boarnet of the University of California at Irvine showed that in counties where highway spending accelerated, they experienced increased economic activity, but also found that adjacent counties experienced reduced economic output (Boarnet, 1995). Other research echoes these findings: "By design, beltways and bypasses create large areas of highly accessible land outside the city, particularly at interchange sites, which are traditional magnets for development such as office parks or shopping areas."

The new land availability attracts businesses to the suburbs where zoning is less restrictive, allowing large parking lots and subdivision lots. This feature of the beltway system has been a powerful force for moving people and jobs out of the central city, resulting in a shift in the business activity away from downtown (Anderson, et al., 1980). In 1980, a comprehensive study carried out by a consulting group for the U.S. Department of Transportation (DOT) and the U.S. Department of Urban Development (HUD) concluded, "because any net gains are likely to be small, potential adverse impacts of beltway construction probably cannot be balanced by beltway-induced regional economic growth." These findings agree with studies of rural bypasses. One study looked at bypasses in Minnesota and Iowa and found that economic benefits of highways were merely shifted from one location to another.

Echoing these conclusions, an interim report by SACTRA that was released along with the reduced travel study, suggests that new roads can lead to job losses, and that closing roads in city centers can boost the local economy. SACTRA set out to investigate the age-old argument that new roads help to revitalize neglected areas. In rural areas, the study found that new highways expose local companies to outside competition, ultimately leading to job loss. The report's overall findings suggest that roads designed to bring jobs into areas of high unemployment can instead result in fewer employment opportunities because of increased congestion. Furthermore, the study offers that closing roads can create downtown jobs because reduced congestion results in benefits to the overall economy.

Lessons

The key to accommodating a major change in traffic patterns, like a road closure, appears to be the flexibility of the transportation system. The effects of projects to reduce capacity, the researchers assert, will be reinforced or undermined by the network conditions, policy incentives, and influenced by home, work and social activities. Commuters in the British study had a variety of travel options to choose from, including public transit, walking or working from home. This adaptability allowed for a smooth transition. The study demonstrates that a balanced approach to transportation planning not only better serves its citizens, but allows for improved traffic management and a healthy network. And many cities have found that while reducing capacity may not have a measurable traffic reduction, by reducing barriers, they have discovered a new life beyond roads.

In 1989, the Loma Prieta earthquake toppled San Francisco's Embarcadero Freeway, and the citizens and local officials decided not to rebuild it—despite the cries of impending doom. Although engineers around the Bay Area predicted a traffic disaster, the chaos never materialized, and ridership on the Bay Area Rapid Transit (BART) system went up 30,000 new passengers. Seven years later, when the upper deck of San Francisco's unstable Central Freeway was torn down, local officials again predicted a grim picture for Bay Area traffic. But once more, gridlock never materialized, prompting citizens and local officials to call for its complete removal. A stark lesson emerged from both incidents, namely the exaggeration of the freeway's importance in the transportation system.

In the case of the Embarcadero Freeway, people also underestimated how the city would transform once it was liberated from the concrete barrier. Once shrouded in darkness and noise, downtown San Francisco's now-exposed waterfront has enjoyed a revival ever since the concrete structure came down. Instead of the hostile, dead-end environment, the bayside now boasts an inviting promenade, bathed in light. Many improvements followed the freeway's demise, including the placement of historical markers along the waterfront, an overhaul of the Ferry Building Depot to serve as an intermodal hub, installation of a light rail line, and a boom in residential and commercial activity.

In Portland, Oregon, the citizens did not wait for a natural disaster to intervene, but made a conscious decision to reclaim the riverfront from Harbor Drive, a six-lane freeway abutting the river. The impact to the city was tremendous, sparking the revitalization of the downtown area. In place of the freeway, a 37-acre waterfront park was built and now hosts events throughout the year, attracting citizens and tourists to what is proudly referred to as "Portland's backyard." Because of the hard work of the citizens and projects like Pioneer Square, a former parking lot-turned-public space in the middle of the city, downtown is a destination. The light rail system is a testament to the success of downtown's attractions, as it serves a higher ridership on the weekends than during the weekday rush. Walking is also a celebrated mode of transportation. Portland's thriving downtown proves that there are solutions other than building new roads, and in the process has attracted the praise of tourists and local officials worldwide.

British officials, spanning the John Major and Tony Blair governments, are increasingly disenchanted by the idea of building more roads. Goodwin's study played a significant role in the

British government's White Paper on transport, along with the debate over the proposed 1999 Road Traffic Reduction Bill. The bill will require the Government to cut traffic levels up to 10 percent by 2010, get trucks off the roads, and boost public transport, cycling and walking. The findings also support the large-scale changes that many citizens and local officials are calling for, including the pedestrianization of Parliament Square and Trafalgar Square, and expanded public transit. The British government is poised to change its transport policy, as new studies continue to shake up transportation planning models. The question is, will it convince stalwart road supporters to curb the road building fervor and plan cities that serve its citizens?

Opportunities with TEA-21

The newly-reauthorized transportation bill, the Transportation Equity Act for the 21st Century (TEA-21) offers many tools for local officials to put some of these ideas into action. The findings of the British study reinforce the need for an integrated transportation policy which recognizes the interaction between transportation and other activities, including different elements of the transportation system itself. TEA-21 retains the structure of its predecessor, ISTEA, offering opportunities to fund more integrated transportation systems and provide more options for travelers. Some of these programs are:

- The Congestion Mitigation and Air Quality Program (CMAQ) provides funding to areas that are designated by the U.S. Environmental Protection Agency (EPA) as non-attainment or maintenance for ozone or carbon monoxide. CMAQ funds must be spent on projects that help reduce ozone, carbon monoxide or particulate matter pollution.
- The enhancements program makes the critical link between communities and transportation. Enhancements funding encourages diverse modes of travel, fosters local economic development, and brings direct benefits to communities from transportation spending. Projects eligible for enhancements funding include improvements to bicycle and pedestrian infrastructure, and scenic and historic preservation.
- The planning requirements in ISTEA have been consolidated in TEA-21 into a list of seven planning considerations for states and local Metropolitan Planning Organizations MPOs that encompass local control, fiscal constraint, and accountability.
- TEA-21 also continues the commitment to system preservation. Too often the temptation is for states and localities to focus on building new roads without ensuring enough money to adequately maintain the current infrastructure. This "fix it first" strategy is funded through the Interstate Maintenance program, and the Highway Bridge Replacement and Rehabilitation program.

TEA-21 also includes some promising additions such as:

- Explicit language that recommends a better role for local officials in small metropolitan and rural planning, although it is not a requirement.

- The Transportation and Community and System Preservation (TCSP) pilot program provides funds for projects that integrate transportation and land use.
- The Job Access and Reverse Commute Program is designed to connect unemployed people with jobs and ease the transition from welfare to work.

Many local officials have found that decreasing road capacity and expanding options for public transit, walking, and biking are rejuvenating their cities. New evidence from the UK supports these decisions, creating new opportunities for traffic management. By demonstrating that road closures can eliminate traffic and boost the economy, reduced travel further debunks the notion that building more roads will solve traffic problems. As the British transport minister proclaimed, “the fact of the matter is that we cannot tackle our traffic problems by building new roads.” And as cities around the world wrestle with rising traffic congestion, evidence of reduced travel helps demonstrate that a balanced, equitable system is not only the most effective solution to current traffic problems, but a sensible policy for the future.

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